CLAIMS

What is claimed is:

1. A sterilizable transfer or storage device for delivery or storage of a medicament, drug or vaccine, comprising a first member formed of a cyclic olefin polymer and a second member having a surface in contact with said first member formed of a second polymer, wherein the relative energy distance Ra/Ro of said second polymer relative to said cyclic olefin polymer is greater than 0.75 to prevent adhesion of said second member to said first member and stress cracking of said first member at elevated temperatures, including autoclaving.

2. The sterilizable transfer or storage device as defined in Claim 1, wherein the molecular weight of said second member is at least 5,000.

3. The sterilizable transfer or storage device as defined in Claim 1, wherein said first member is a syringe barrel and said second member is a plunger stopper.

4. The sterilizable transfer or storage device as defined in Claim 3, wherein said plunger stopper is formed of a polymer selected from the group consisting essentially of styrene butadiene and a fluorocarbon polymer.

5. The sterilizable transfer or storage device as defined in Claim 1, wherein said first member is a syringe barrel and said second member is a tip cap or tip shield in contact with said syringe barrel.

6. The sterilizable transfer or storage device as defined in Claim 5, wherein said tip cap or tip shield having surface in contact with said syringe barrel formed of a styrene butadiene polymer.

7. A sterilizable syringe assembly including a generally tubular syringe body formed of a cyclic olefin polymer and a plunger having a stopper telescopically received in said syringe body in contact with an internal surface of said syringe body, said stopper formed of a second polymer wherein the relative energy distance Ra/Ro of said second polymer relative to said cyclic olefin polymer is greater than 0.75 to prevent adhesion of said stopper to said syringe body and stress cracking of said syringe body at the elevated sterilization temperature.

8. The sterilizable syringe assembly as defined in Claim 6, wherein the relative energy distance Ra/Ro of said second polymer relative to said cyclic olefin is equal to or greater than one and the molecular weight of said second member is at least 5,000.

9. The sterilizable syringe assembly as defined in Claim 7, wherein said plunger stopper is formed from a polymer selected from the group consisting essentially of styrene butadiene and a fluorocarbon polymer.

10. The sterilizable syringe assembly as defined in Claim 7, wherein said syringe assembly further includes a tip cap or tip shield removably assembled on said syringe body, said tip cap or tip shield formed of a third polymer, wherein the relative energy distance Ra/Ro of said third polymer relative to said cyclic olefin polymer is greater than 0.7 to prevent adhesion of said tip cap or tip shield to said syringe body and stress cracking of said syringe body at elevated temperatures.

11. The sterilizable syringe assembly as defined in Claim 10, wherein said third polymer is the same as said second polymer.

12. A method of making a sterilized syringe assembly comprising the following steps:

forming a generally tubular syringe barrel from a cyclic olefin polymer;

forming a plunger stopper from a second polymer, wherein the relative energy distance Ra/Ro of said second polymer relative to said cyclic olefin polymer of said syringe barrel is greater than 0.75;

telescopically receiving said plunger stopper in said generally tubular syringe barrel with said plunger stopper in contact with an inside surface of said generally tubular syringe barrel; and

heating said syringe barrel and said plunger stopper to the sterilization temperature of said syringe barrel and plunger stopper.

13. The method as recited by claim 12, wherein said method further comprises:

forming a tip cap or tip shield from a third polymer, wherein the relative energy distance Ra/Ro of said third polymer relative to said cyclic olefin polymer is greater than 0.75 to prevent adhesion of said tip cap or tip shield to said syringe body and stress cracking of said syringe body at elevated temperatures; and

assembling said tip cap or tip shield on said syringe barrel before said step of heating said syringe barrel.

14. The method as recited by claim 12, wherein said step of forming a generally tubular syringe barrel comprises forming a generally tubular syringe barrel having a molecular weight of at least 5,000.

15. The method as recited by claim 12, wherein said step of forming a plunger stopper comprises forming a plunger stopper of a polymer selected from the group consisting essentially of styrene butadiene and a fluorocarbon polymer.

16. The method as recited by claim 13, wherein said step of forming a tip cap or tip shield from a third polymer comprises forming a tip cap or tip shield from a third polymer formed of a styrene butadiene polymer and having a surface placeable in contact with said syringe barrel.

17. The method as recited by claim 16, wherein said third polymer is the same as said second polymer.